

Amendments to the Claims:

1 - 23. (canceled)

24. (currently amended) A method for casting parts having internal cavities or holes an engine cylinder head from molten metal, said method comprising steps of:

— laying into a mold or chill intended to receive the molten metal one or more cores made of sand or other material, wherein each core is provided separately into a proper core box, and, before laying into the mold or chill,

— coating at least one core with a layer of a material adapted to dissolve in contact with the casting metal, and, before said coating step,

— laying at least one valve seat for the intake and/or exhaust valve in a die for coating at least one core with a layer of a material adapted to dissolve in contact with the casting metal embedding said valve seat

— forming a core from sand or other material, said core having a conical end towards a combustion chamber;

— providing a die for coating said core with a layer of a material suitable for dissolving upon contact with said molten metal;

— providing at least one valve seat having conical internal and external surfaces, wherein the tapering of the internal surfaces corresponds to the tapering of said conical end of the core;

— placing said valve seat in a respective reference provided in said die;

— placing said core in said die in such a way that the conical end of the core mates with said valve seat internal surface; and

— coating said core with said layer of material in such a way said material envelops said valve seat around the external surface thereof.

25. (currently amended) A method according to claim 24, wherein further comprising a step of forming at least one seat for a valve guide, before said step of

coating at least one core with a layer of a material adapted to dissolve in contact with the casting metal; it comprises the step of forming at least one seat for a valve guide.

26. (previously presented) A method according to claim 24, wherein said coating is applied to the core only in the zones and by the thickness of the casting shape.

27. (previously presented) A method according to claim 26, wherein the coating is performed by injection molding on the core to be coated.

28. (currently amended) A method of an engine cylinder head according to claim 24, wherein a main core, which is the water jacket core intended to form the coolant circulation passages, and secondary cores, which mainly are ducts cores for the intake and exhaust ducts, are provided.

29. (previously presented) A method according to claim 28, wherein the main core is formed into a special core box, along with one or more secondary cores intended to be associated to said main core, and further comprising steps of:

coating at least one secondary core, only in the zones and by the shaped thickness, with a layer of material intended to dissolve in contact with the molten metal;

inserting the group consisting of at least one secondary core and of at least one valve seat, all coated with said layer of material intended to dissolve in contact with the molten metal into the main core box yet to be molded;

molding the main core box; and

inserting the monolithic group comprising the water jacket core, the secondary cores, the at least one valve seat, the layer of material intended to dissolve in contact with the molten metal that keeps them firmly connected, into the mold or chill intended to receive the molten metal.

30. (currently amended) A method of an engine cylinder head according to claim 29, wherein the ~~main core~~ is that intended to form the water jacket for the engine coolant circulation, and wherein the secondary cores ~~comprise~~ at least the include cores of the intake and exhaust ducts, wherein said duct cores are laid into a single die to be coated with the coating material layer so as to form a single body to be laid into the special water jacket core box.

31. (previously presented) A method according to claim 30, wherein valve seats for the intake and exhaust ducts are first laid into the die, the injected material enveloping said valve seats on the outer diameter.

32. (previously presented) A method according to claim 24, wherein prior to assembly monolithic group into the mold or chill, at least one valve guide for the intake and/or exhaust valve is inserted into the monolithic group comprising the main core and the secondary coated cores.

33. (currently amended) A method according to claim 24, wherein the cores to be coated ~~consist of~~ comprise hollow inserts made of a heat resistant material, wherein the cavity represents the shape according to the drawing.

34. (currently amended) A method according to claim 24, wherein the cores to be coated ~~consist of~~ comprise a hollow insert for the shaped zones only, made of a heat resistant material filled with sand and polymerized resin to form the prints and prevent metal infiltrations.

35. (currently amended) A method according to claim 24, wherein the coating material of the sand and polymerized resin cores or of the inserts is a foamed material, ~~such as polystyrene~~.

36. (currently amended) A main core box for the method according to claim 28, said box consisting of only two portions intended to be closed onto one another, and being free from undercuts and ~~therefore of mobile parts adapted to perform the draft moving parts~~, and having seats and negative prints for receiving and blocking into position the secondary cores pre-coated with the coating material.

37. (currently amended) A die for coating the intake and exhaust duct cores in an engine cylinder head casting process according to claim 28, ~~wherein the die is provided with said die comprising~~ cylindrical mobile pins intended to form at least one seat into the coating material for the valve guides of the intake and/or exhaust valves.

38. (previously presented) A die for coating the intake and exhaust duct cores in an engine cylinder head casting process according to claim 28, wherein the die is configured to receive at least one valve seat for the intake and/or exhaust valves.

39. (previously presented) An engine cylinder head having embedded therein at least one embedded hollow insert made of metal or other heat resistant material, whose interior forms the design of the corresponding intake and exhaust duct.

forming at least one seat for a valve guide.

42. (previously presented) A method for casting an engine cylinder head, wherein said cylinder head has at least one water jacket for the engine coolant circulation at least an intake and/or exhaust duct, and at least one valve seat for the intake and/or exhaust valve, said method comprising steps of

laying into a mold or chill intended to receive the molten metal one or more cores made of sand or other material and provided separately into proper core boxes, at least the core of the duct being coated with a layer of a material adapted to dissolve in contact with the casting metal before being laid into the mold or chill, and

embedding said at least one valve seat guide into said layer of a material adapted to dissolve in contact with the casting metal, in such a way that during the casting, the molten metal will dissolve and replace the layer of a material adapted to dissolve in contact with the casting metal, determining the required thickness and embedding said valve seat or guide.

43. (previously presented) Apparatus for casting an engine cylinder head, wherein said cylinder head presents at least a water jacket for the engine coolant circulation, at least an intake and/or exhaust duct, at least one valve guide for the intake and/or exhaust valve, wherein said water jacket and duct are obtained by

laying into a mold or chill intended to receive the molten metal one or more cores made of sand or other material and formed separately into proper core boxes, and wherein at least the core of the duct is coated with a layer of a material adapted to dissolve in contact with the casting metal before being laid into the mold or chill, and further comprising

embedding said at least one valve guide into said layer of material in such a way that during the casting, the molten metal will dissolve and replace said layer of material, determining the required thickness and embedding said valve guide.

44. (previously presented) Apparatus for casting an engine cylinder head, wherein said cylinder head presents at least an intake and/or exhaust duct, at least one valve seat or valve guide for the intake and/or exhaust valve, wherein said duct is obtained with one or more cores made of sand or other material, and wherein at least the core of the duct is coated with a layer of a material adapted to dissolve in contact with the casting metal, and further comprising

means for embedding said at least one valve seat or guide into said layer of a material adapted to dissolve in contact with the casting metal, in such a way that during the casting, the molten metal will dissolve and replace the layer of a material adapted to dissolve in contact with the casting metal, determining the required thickness and embedding said valve seat or guide.

45. (new) A method according to claim 35, wherein the foamed material is polystyrene.